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Abstract

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The Effects of Using Digital Tools to Support Writing in the ELL Classroom

A Graduate Review

Submitted to the

Division of Instructional Technology

Department of Curriculum and Instruction

In Partial Fulfillment

Of the Requirements for the Degree

Master of Arts

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by

Katrina Lint

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Degree of Master of Arts.

Date Approved

Graduate Faculty Reader

Date Approved

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The Effects of Using Digital Tools to Support Writing in the ELL Classroom

According to a report from Common Sense Media, teens spend an average of nine hours a day on media use (Common Sense Media, 2015). Yes, this media use includes watching TV and videos, playing video games, using social media, using the Internet, listening to music, reading online and anything else related to using a screen but the bigger, more concerning picture around this study is that this is more time than students spend in a classroom, possibly even more time than they spend sleeping. This is an extensive amount of time spent in front of a screen. This statistic demonstrates just how connected today's students are; connected to technology, connected to media, and connected to their peers. They have become highly social beings who learn differently because of this immersion in technology. Larry Rosen (2010) states, "Education has not caught up with this new generation of tech-savvy children and teens. It is not that they don't want to learn. They just learn differently" (p. 3). He discusses the need for teachers to embrace the new learning styles their tech-savvy students possess and develop strategies to meet those needs. Therefore, in order to keep students interested and engaged in content, educators need to address these changes in learning styles and create a pedagogy that incorporates students' interests as well as their technological skills within the curriculum.

Incorporating digital tools (e.g., blogs, google docs, social networks, wikis) to support and improve writing skills is a growing area of research as teachers search for new and better ways to increase student engagement and improve student learning. However, as students become more technology driven (and also distracted by it), educators seek verification on how digital tools can and should be used in the writing classroom. There is a need to conduct a literature review about implementing digital tools for secondary language learning. Therefore,

there is a need to further research how the implementation of digital tools can facilitate the growth of students' writing.

For the purpose of this review, *digital tools* is a broad term for a tool using or characterized by technology (Merriam-Webster). This tool can generate, process, and store data. This can include a website, an app on a phone or tablet, a social networking site, a computer program, learning management systems, etc.

Social networking sites (SNS) will be defined as an online site through which people can create profiles to create, build, and maintain relationships in order to share information, ideas, messages, pictures, etc. (Webopedia). Examples of SNS include Facebook, Twitter, Youtube, blogs, and wikis.

Language acquisition refers to the universal process of how children acquire their native language. This is an innate ability that occurs passively and unconsciously. It is perceiving, comprehending and producing words and sentences. (Linguistic Society)

Second language acquisition (SLA) refers to learning a second language after a first language is learned. Just as babies go through stages of learning their native language (listening to babbling, to imitating, to producing words then sentences), people go through similar stages when learning a second language. (American Speech Language Hearing Association).

When examining the focus areas of second language acquisition, the terms *ESL*, *ELL* or *EFL* may be used. *ESL* refers to English as a Second Language. *ELL* (English Language Learner) is a newer term that is being using in place of *ESL*. *ESL/ELL* occurs when English is being learned in the United States, or another English-speaking country, by someone whose native language is something other than English. *EFL* signifies English as a Foreign Language, which is when a person in a non-English speaking country learns English.

This review will examine two common digital tools, Facebook and Wiki, and how their implementation has improved students' second language writing skills. This review will also examine students' perceptions and attitudes regarding using Facebook and Wiki for writing purposes.

Methodology

The research for this review began because of the researcher's interest in using authentic and engaging tools to help students learn and acquire a second language. To obtain articles, the researcher used two primary databases to search: Google Scholar and OneSearch! (a comprehensive research database through the University of Northern Iowa Rod Library.) Because the topic of this review is centered on education and learning, the ERIC database was specifically used through the OneSearch system. The researcher located other studies by reviewing the citations of the selected peer-reviewed articles.

Certain descriptors were used to narrow the number of searches returned on the databases. Those descriptors included *social media*, *language learning*, *ESL*, *English as a second language*, *language learning*, *writing*, *language acquisition*, *social networks*, *digital tools*, *Web tools*, *Web 2.0*, *wiki* and *Facebook*. In addition to these keywords, the Boolean search operator *AND* was used. Some of the keyword phrases used include *social media AND language learning*, *digital tools AND writing*, *social networks AND writing*, *social media AND English as a second language*, *social media AND English as a second language AND writing*. The database searches were limited to include only those articles that were dated between the years of 2008 to 2016.

Once articles were retrieved, the researcher reviewed the abstracts to determine relevancy to the topic. If relevant, the researcher then read the article and evaluated it based on the quality of the content and of the research. The researcher also considered sample size, methodology, and

if both the journal and the researcher were reputable. Thirty articles were reviewed for this research.

Analysis and Discussion

Writing is a weaker skill among students who are learning English as a second language or foreign language, therefore, teachers need innovative approaches that will both help students learn about grammar, sentence structure, vocabulary, and other areas of writing as well keeping students engaged and motivated to learn.

Most of the obtained research pertains to writing with English as a Second and/or foreign Language (ESL or EFL) at the university level outside of the United States. Some of the reviewed research does incorporate learning languages other than English (such as learning German or French) both in and out of the United States. It also includes a few studies done at the elementary and high school levels. All of this research, no matter the age level nor language being learned, can lead to insight as to how digital tools can facilitate writing in a second or foreign language.

The main focus of this literature review is on how digital tools, specifically Facebook and Wiki, can affect writing skills for those students who are learning English as a second or foreign language. This includes studies that have implemented digital tools as well as studies that have examined students' attitudes and perceptions towards using digital tools to improve writing skills, as attitudes and perceptions can affect learning just as much as the pedagogy or strategy that is used for instruction.

Facebook and Wikis to Support ESL/EFL Writing Skills

This literature review will first examine how Facebook was implemented and the results of those studies. It will then look at how students perceive Facebook as a tool to help improve

writing skills. The review will then move into wikis and how different researchers implemented wikis for collaborative writing to find about group interactions, types of error corrections and how students perceived using wikis.

Facebook to Support Writing Skills

Using Facebook for language learning, specifically for writing, is a growing body of research. The following studies review how writing on Facebook and the features of Facebook could aid in improving writing skills for those learning English as a second or foreign language.

Suthiwartnarueput and Wasanasomsithi (2012) used various Facebook features (posting, commenting, chatting, etc.) to determine how Facebook could help writing abilities among undergraduate students learning English (low-intermediate EFL) in Thailand. A pretest, consisting of grammar questions and writing topics, was implemented to determine a baseline prior to implementing Facebook activities. Students' writing activities on Facebook included posting comments and questions, leaving messages, chatting with the teacher and peers, as well as discussing any English grammar and writing problems they encountered.

After the treatment, a posttest (an equivalent form of the pretest) was given. The results between the pre-and post-tests show that there was a significant improvement in the students' grammar ($t= 6.65$, $p=0.00$) and writing ($t=6.64$, $p=.000$). The post test showed that students received higher scores in all grammatical areas, thus writing more organized and meaningful paragraphs on the post test. These results demonstrated that the ability to not only practice writing in different formats (questioning, commenting, chatting) but the ability to actually discuss problem areas with grammar and writing among peers and the teacher have positive impacts on writing. It appears when students are able to discuss strengths and weaknesses in

grammar and writing, it leads to writing improvement. The results of this study show how using Facebook can help facilitate grammar discussions among students and the teacher, which, in turn, can help improve writing skills.

Table 1: *Means of Pre-and post-test for Suthiwartnarueput and Wasanasomsithi (2012)*

Writing Criteria	Pre-test Mean	Post-Test Mean
Content	8.48	10.12
Punctuation	5.8	6.48
Paragraph organization	5.25	5.84
Grammar rules and usage	7.29	9.42

In addition to exploring the features of Facebook, Wichadee's (2013) study also examined the impact of peer feedback on writing skills. Thirty students who had enrolled in a fundamentals English class at a private university had two separate writing tasks that they submitted to their peers via Facebook. Each writing task included a first draft and a final draft. Peers gave feedback and the feedback was used for revision. The types of feedback that students provided to each other included content, grammar, language use, organization, and creativity. For both writing tasks, feedback about content was the most frequent.

After the students implemented Facebook for feedback and revisions, three raters evaluated each of the writing tasks (first and final draft for each writing task). The mean scores for each of the final writing tasks increased, therefore suggesting the peer feedback positively affected students' writing performance. The mean score on the first draft of the second writing prompt was higher than the mean score on first draft of the first writing prompt. This could

suggest students were applying the feedback they had received in their writing even at the beginning writing stages of the second writing experience.

Table 2: *Comparison of Writing Performance in Wichadee's (2013)*

Assignment	Mean	Standard Deviation
Writing Task 1 (first draft)	5.98	1.25
Writing Task 1 (final draft)	7.32	1.21
Writing Task 2 (first draft)	6.18	1.14
Writing Task 2 (final draft)	7.47	1.21

The results of Miftah (2016) and White (2009) also supported the results of Wichadee (2013) and how peer feedback on Facebook can aid in the improvement in writing skills. Miftah (2016) used peer feedback with EFL students for writing an argumentative essay and found that while students were still making mistakes, their writing did improve as they were making fewer writing mistakes. In White's study (2009), EFL students responded to a weekly discussion question, via a Facebook group, and individual feedback from an instructor, versus peers, was given to students. Results of this study showed positive improvements in spelling and grammar. Writing on Facebook also helped students become more motivated to learn from their mistakes rather than be passive observers of them.

Shih's (2011) study took a slightly different approach to writing on Facebook and implemented a blended learning approach. In this study, Facebook was integrated with peer assessment and blended learning. For the first part of the study, Taiwanese ESL students attended a face-to face class. For the last part of the study, students were divided into low, medium, and high-proficiency groups based on their scores on an English entrance exam.

Students posted writing assignments for their peers to assess and provide feedback. Students were also given a pre-and post-test in which they were required to write an essay on a given topic. The five areas in which the essays were scored are listed in Table 3.

Results from this study show students in all three groups made significant progress from the pre-tests to the post tests in regards to content, organization, structure and vocabulary and spelling.

Table 3: *Pre-and post- test of English writing for the three groups for Shih (2011)*

	Low Group N=8		Middle Group N=7		High Group N=8	
	Pre-test	Post test	Pre-test	Post test	Pre- test	Post test
Content	20	29	20.5	24.5	23	30
Organization	20	29.5	20.5	24	22	26
Structure	17	24.5	14.5	21	19.5	24.5
Vocabulary and Spelling	16.5	23	17	18.5	19	23
Genre	8.5	11	7	9	9.5	11
Total	82	117	79.5	97	93	117.5
Difference between pre and post test	35		7		24.5	
Paired t-test (p<.05)	.010		.034		.001	

The previously mentioned studies (Suthiwartnarueput & Wasanasomsithi, 2012; Wichadee, 2013; Miftah, 2016; White, 2009; Shih 2011) contain two different driving variables- Facebook and using peer feedback. The combination of these two variables has shown positive results on students' writing skills. But is one variable more important or more successful at

helping students improve their writing skills? Is Facebook simply a medium that promotes student engagement thus increasing writing skills because students are more motivated and engaged in their work? Or is it the peer feedback and the discussions students have about writing that is helping increase their writing skills? The next study attempts to answer these questions.

This next study, by Shukor and Noordin (2014), arranged ESL undergraduates in Malaysia into treatment and comparison groups based upon pre-test results. Students in the comparison group completed collaborative writings face-to-face while the treatment group participated in collaborative writing on Facebook groups. When comparing the pretest results of the face-to-face group and the Facebook group, they showed that there was no significant difference among them. This also holds true when comparing the post-test results. However, when comparing the pre-and post-test results within the same group, differences were seen.

Differences in test results were not seen when comparing the two groups (face-to-face vs Facebook writing) side-by-side but differences can be seen when comparing the pre-and post-tests of the within the same groups. For example, when comparing the pre-and post-tests of the face-to-face group, significant differences in scores were found in the areas of overall performance, content, organization, and vocabulary. However, when comparing the pre-and post-tests of the Facebook groups, significant differences were found in all areas as well as having higher writing scores, thus suggesting Facebook helped increase students' writing ability. (See tables 4 and 5).

Table 4: *Shukor & Noordin (2014) Comparison of Pre-test and Post-test Scores of Overall Writing Performance for Face-to-Face collaborative writing groups*

Face to Face	Mean	SD	t	p p<.05
Pre-overall performance	65.03	10.27	-3.52	.003
Post-overall performance	74.71	7.59		
pre-content	19.56	2.66	-5.69	.000
Post-content	23.68	2.36		
Pre-organization	14.32	2.42	-2.74	.014
Post-Organization	16.09	1.46		
Pre-vocabulary	13.09	2.41	-3.54	.003
Post-vocabulary	15.09	1.57		
Pre-language use	15.12	3.05	-1.73	.102
Post-Language use	16.74	2.56		
Pre-mechanics	2.94	.46	-2.56	.138
Post-mechanics	3.12	.38		

Table 5: *Shukor & Noordin (2014) Comparison of Pre-test and Post-test Scores of Overall Writing Performance for Facebook collaborative writing groups*

Facebook	Mean	SD	t	p p<.05
Pre-overall performance	66.66	9.11	-6.86	.000
Post-overall performance	76.94	7.18		
pre-content	20.47	2.98	-8.04	.000
Post-content	24.59	1.94		
Pre-organization	14.69	1.86	-5.73	.000
Post-Organization	16.63	1.23		
Pre-vocabulary	13.97	2.06	-3.08	.008
Post-vocabulary	15.34	2.14		
Pre-language use	14.63	2.87	-3.30	.005
Post-Language use	17.00	2.47		
Pre-mechanics	3.03	.56	-2.71	0.16
Post-mechanics	3.34	.46		

These results demonstrate that collaboration among peers is a successful component of enhancing students' writing skills. The results also demonstrate the successful role Facebook played in collaborative writing, as students in the Facebook group had higher scores than those in the face-to-face group. To answer the questions posed above, "yes, Facebook can be an engaging medium that assisted in improving writing skills" and "yes, peer feedback also played a role." Because this is only one study, other studies, with this same type of design could be implemented to determine if the results are similar.

Wang and Camilla (2014) took a slightly different approach to their study. They implemented a study with students learning Chinese as a foreign language at a university in the United States. They implemented an experimental study to determine if writing on Facebook improved the quantity and/or quality of students' writing; thus, trying to determine if the frequency of writing improved how much and how well a student wrote. This study is different from the others in that it does not include any type of feedback or writing discussions from their peers or the instructor. In this study, students in the experimental group were to participate in weekly social communication with their peers. Posts and comments were not restricted to certain topics. Students in the control group did not utilize writing on Facebook. Other than the Facebook writing activity, the students received the same instruction and completed the same course assignments.

Three writing assignments were given at the beginning, middle and end of the treatment to measure writing ability in Chinese. Each writing prompt was sent to all the students via email in which they completed the writing and emailed it back to the researcher. Writing quantity was scored by using a word count tool to count the total number of Chinese characters (a character is considered the basic writing unit in the Chinese language) written. Writing quality was scored using a rubric.

While the results of this study do indicate the experimental group did produce more Chinese characters than the control group as well as had better quality of writing, there difference is not significant, meaning posting on Facebook did not impact the quality of writing. Hence, increasing the frequency of writing does not mean better writing. This study demonstrates that Facebook can be a platform for students to use to engage in writing activities in the target language outside of class but simply writing will not help writing skills. Students

need to engage in writing discussions with their peers, their instructors, native speakers, and so forth is what will help improve their writing skills. As shown in the studies by Shih 2011; Miftah 2016; Suthiwartnarueput and Wasanasomsithi 2012; White 2009 and Wichadee 2013 Suthiwartnarueput & Wasanasomsithi 2012; Wichadee 2013; Miftah 2016; White 2009; Shih 2011, students need opportunities, both inside and outside of the classroom, to discuss writing which can then lead to further growth and improvements in writing abilities.

Students' Perceptions of How Facebook Might Improve Writing Skills

After reviewing the studies on the effects of Facebook on student' writing skills, it is important to analyze its impact from students' perceptions. Several studies examine students' perception of how incorporating Facebook can improve their writing skills. While these studies do not actually demonstrate that Facebook can improve writing skills, they do uncover valuable information that can be considered when deciding if Facebook is an appropriate tool for writing.

Shih (2011) and Wichadee (2013) incorporated student interviews as a part of their research. The results of the interviews were similar. In both studies, students found Facebook as a valuable tool to learn from their peers, as giving and receiving feedback were interesting and effective ways to learn from each other. They also liked the convenient nature of Facebook (Shih, 2011) and how Facebook allowed them to react with each other in a meaningful way (Wichadee, 2013).

Additionally, Kabilan, Ahmad, and Abidin (2010) carried out a quantitative study in Malaysia about students' uses and views of Facebook as an online learning environment. Three hundred students were randomly chosen to participate in the survey. The students' general perceptions were that Facebook could be an effective environment to help them improve their language skills. Table 4 contains results of those questions asked related to writing. The results

demonstrate that students not only perceive Facebook to be a positive medium to help them practice and improve their writing skills, but Facebook also makes them more motivated and confident to do so.

Table 4: *Students' perceptions of Facebook as an effective medium for language acquisition from Kabilan, Ahmad & Abidin's (2010)*

	Mean (out of 4)
Enhance communication skills	3.81
Practice writing in English	3.8
Make learning English fun	3.81
Enhance confidence to write in English	3.79
Enhance motivation to write in English	3.66
Make learning more interesting	3.81

Rios and Campo (2015) continued with this theme by examining Costa Rican students' perceptions and opinions of Facebook after using it for approximately ten weeks as an optional tool in their English classes. In response to the question, "...has the use of the Facebook group contributed positively to improving your language knowledge?" (p. 257), 94.28% of the students responded positively. They felt they could learn from, as well as study from, the different posts made by their peers. Also, through the group's posts and discussions, students felt the extra information and explanations their peers provided aided in their understanding.

Likewise, Yunus, Salehi, Sun, Yen, and Li (2011) examined students' perceptions of Facebook Groups in teaching ESL writing in Malaysia. As part of the group, students were required to be involved in such tasks as summary writing, brainstorming, contributing ideas and giving opinions. A questionnaire was used to gather students' perceptions on whether they felt

the Facebook group helped them to improve their writing skills. The majority of the students acknowledged that Facebook helped them in the writing process, specifically in the brainstorming process and organizing their ideas before actually starting to write. Students also felt they were able to learn from their peers by learning new vocabulary and getting new/better ideas from peers based on their posted comments to each other. Overall, they felt it was easier to complete writing tasks after the Facebook discussions.

A study by Eren (2012) had similar results to the previously mentioned studies. This study was implemented in Turkey with students who were enrolled in a compulsory English prep class to determine students' attitudes towards using Facebook in class and to determine if Facebook was useful for improving language skills. Within this Facebook group, the researcher posted daily activities and the students would respond to these as well as share their opinions, videos, photos, and links to other websites. After the Facebook implementation, the researcher used questionnaires and interviews to find students' overall attitudes and perceptions of using Facebook.

Overall, 68.6% of the students felt Facebook could be used for educational purposes and 61.5% of students had positive attitudes about using Facebook as a tool to improve their language proficiency. One interesting revelation is that, while students had positive perceptions of using Facebook as a learning tool, they also felt Facebook was not as valuable as traditional learning. Hence, Facebook has a place as a learning extension tool but should not replace traditional learning.

On a similar note, Blattner and Lomicka (2012) paired a class of students learning French in the US with native French speakers in France through a Facebook group page. Researchers found students appreciated being able to learn from discussion with both local classmates but

also their partners in France. Student interviews also revealed that students like Facebook due to its “facilitation of communication among students and faculty” and its “language and cultural exchange.” (para 21). From these results, it can be suggested that features of Facebook made for a positive learning experience for the students as well as helped them learn more about French culture. It could then be inferred that students who are learning English could be paired with native English speakers and they would have similar positive learning experiences.

Akbari, Naderi, Simons, and Pilot (2016) implemented a study where the experimental group received formal teaching instruction via Skype and then interacted with the teacher and their peers through various postings and conversations related to this instruction on Facebook. This is slightly different from the previously mentioned studies because they examined the use of Facebook along with face-to-face instruction whereas this study uses Skype as well. The control group did not receive instruction via Skype nor Facebook but instead had face-to face instruction and interaction with their peers. Pre-and post TOEFL (the standard test for students who are learning English as a Foreign Language) tests were given to measure linguistic outcomes. The researcher also interviewed the two different groups.

The results showed the experimental group scored higher on the TOEFL test than the control group. Along with having higher linguistic outcomes than the control group, those students in the experimental group also reported higher levels engagement and intrinsic motivation than those who had face-to-face instruction. What this study shows is that not only did students improve linguistically through their interactions on Skype and Facebook, they were also more intrinsically motivated and more engaged while doing so. It is not just Facebook that helps students improve but it is also how students interact and how this interaction makes students more engaged, thus improving their learning.

Considering all the literature that has been presented thus far in regards to using Facebook to improve writing skills, it can be suggested that Facebook can be an effective tool for writing. The tools Facebook offers promote collaboration which can lead to higher engagement, thus increasing students' desire to learn. When students are engaged, and are intrinsically motivated to learn, their writing skills will improve. Facebook is an effective tool for enhancing writing skills.

Wikis to Support Writing Skills

Wikis are collaborative web pages that can be viewed and modified by anyone who has access to them. Wikis are popular in education because they can grow and evolve as students add their own material to the page. Users are able to track the history of text edits and/or revisions on wikis. Among other functions, a chat function can also be used among students as they work collaboratively on their writing.

It has been found that studies that have implemented wikis with English writing acquisition take a slightly different approach than those studies with Facebook. With the wiki studies, three common themes have been found. The first theme is examining the different roles students take and how they interact with each other when collaborating on wikis. A second theme examines the types of revisions students make when they collaboratively write and the third theme, similar to the Facebook studies, is students' perceptions of using wikis for learning.

Student Roles and Interactions with Wikis

Two studies examined group interaction patterns. The first study, by Li and Kim (2016), occurred in the United States with a group of students who were learning English for Academic purposes. A Wiki site was set up for the students to use for their collaborative writing task. A

group leader was chosen in hopes this person would help monitor the group in the absence of teacher intervention. Students' discussions and writings were automatically recorded and saved within the wiki discussion, comment and history functions. The researchers then analyzed this information to evaluate the group interaction patterns.

The second study, by Li and Zhu (2013), examined the group interaction patterns with Chinese students who were studying EFL from a university in China. A Wiki site was created and students used this space to work on their collaborative writing tasks. The researchers in this study also used the information stored in the Discussion, History, and Page functions to analyze the group interaction patterns.

The two studies had different results. Li and Kim (2016) found their two groups had different interaction patterns, not only between the two groups, but also between the different writing tasks. Meaning, the groups did not act in similar manners as well their interaction changed when the writing task changed (see table). The results of Li and Zhu (2013) differ in that they found that while there were some changes in individual behaviors, there was a consistent group interaction pattern throughout the three different writing tasks. What these two studies can demonstrate is best stated in the research by Li and Zhu (2013) when they note, "Pedagogically, the wiki was a very useful collaboration tool for small group writing, but our study clearly shows that the collaborative nature of technology does not automatically lead to participants taking a collaborative approach." (p. 39). These studies demonstrate the importance of considering the group dynamics of students when they work collaboratively with their peers. How students work together is just as an important factor as what they are working on. This need to be monitored by the teacher as well if writing skills are going to improve.

Table 5: *Li & Kim (2016) patterns of group interactions*

Group	Task	Patterns of interaction
1	1	Collective: members make balanced contributions to the group writing
	2	Active/withdrawn: some members actively participate and other members have a reduced participation or are withdrawn
2	1	Dominant/defensive: Members take control in different ways or members withdrawn. Group members are unwilling or unable to engage with each other's contributions.
	2	Collaborative: Members interact with each other, participate in their own writing tasks.

Arnold, Ducate, and Kost (2012) explored student interaction in a different way. They wanted to find how students completed revisions when working collaboratively. When students work collaboratively, do they focus more on changing their own writing (this is considered cooperation) or do they focus more on providing feedback and help to other group members (this is considered collaboration). This collaborative writing wiki project occurred with students learning German at three different universities in the United States. The students' writing task was to build wiki pages with cultural and historical information regarding a book they were reading. The researchers analyzed the revision history page of the wikis which saved every edit made.

The researchers found that 75% of the students made revisions to both their work and to their peers' work, suggesting they took a collaborative approach to the tasks. However, when examining the total number of revisions made, 64% of them were made to the student's own writing; meaning, most of the revisions were done in cooperation rather than collaboration.

To further examine the types of revisions that were done, the researchers also looked at the type of revisions that were done. The researchers analyzed the revisions into separate groups. Formal revisions included such changes as spelling, punctuation, verbs, and word order. Content revisions included revisions that would change what the writing said, such as adding or deleting words or sentences. It was found that, in regards to formal revisions, the number was fairly split with 51% if the revisions being made to students' own work and 49% were to peers' work. However, when looking at content revisions, 72% of those revisions were done to the students' own writing and only 28% were made to their peers' writing. This could suggest that while students worked in a collaborative manner, they were timid in making major content changes to another person's writings. The researchers speculated this could be due to students' hesitancy to change writing that is not theirs. While there is mention of student comments on a questionnaire regarding motivation, there is no mention of student comments regarding why certain revisions were made over others. This could be a topic for future student interviews.

Student Revisions on Wikis

The next studies examine the types of edits and revisions students make while working collaboratively on wiki-based writing tasks. It is important to note what types of edits and revisions students make as it can show the depth of students' thinking while working through the writing process.

Kessler (2009) implemented a collaborative wiki-based writing assignment with non-Native English Language teachers in Mexico where he examined the types of corrections the students would make on their collaborative writing task. Even though the students were given the instructions to "strive for accuracy both in content and language" (p. 82), the researcher found the students paid more attention to the content of the writing rather than the grammatical aspects.

More grammatical errors were overlooked than were corrected, even if students had made content corrections within the same sentence containing the grammatical error. Meaning, students were not correcting grammatical errors but would correct errors that helped clarify or made the writing sound better. The researcher hypothesized, because the students were capable of achieving a higher level of grammatical accuracy than was shown through the collaborative activity that they students may have considered this type of activity to be less form demanding. When students were interviewed about their choice to not edit grammar, some felt that if the grammar error did not impede with the understanding of the content, then it was not important to correct.

The results of the study by Aydin and Yildiz (2014) also support Kessler's (2009) findings. For this study, EFL students in Istanbul participated in three different wiki-based collaborative writing tasks. The researchers analyzing the history page, which automatically saves all edits that are made, for the types of edits and revisions the students made, it was found there were more meaning-related changes made than form-related changes throughout all three writing tasks. Meaning, students paid more attention to making sure their message was conveyed and understood by their audience rather than their message being grammatically correct.

Table 6: *Types of corrections in Aydin & Yildiz (2014)*

	Task 1: Argumentative writing		Task 2: Informative Writing		Task 3: Decision- Making Writing	
Form-Related	137	43%	44	23%	76	46%
Meaning-Related	178	57%	147	77%	90	54%

* relationships were statistically significant ($\chi^2=26.317$, $p<0.05$)

Two different studies, Woo, Chu, and Li (2011) and Woo, Chu, Ho, and Li (2013), both done in Chinese primary schools with students learning English, echo the results of Aydin and

Yildiz (2014) and Kessler (2009). The participants in Woo et al. 2013 were asked to collaborate on wikis to create two nonfiction texts. Looking at the revision history, the researchers found there were more content and meaning changes than there were changes in spelling, punctuation, grammar and formatting. Woo et al. (2011) also discovered the same findings when their students collaborated on a nonfiction text about animals. The researchers again found the majority of the edits were concerning adding, reorganize, replacing, and elaborating on the content rather than form items such as syntax, spelling, and punctuation.

The participants in the studies by Woo et al. (2011) and Woo et al. (2013) were primary students. The participants in Aydin and Yildiz (2014) were university aged (average age was 19.2) and those in Kessler's (2009) study were 21-23 years old. The range in ages demonstrates that, even across age ranges, students are acting in the same manner towards developing their second language writing skills. This could mean that students at all ages are more concerned with making meaningful revisions rather than surface level edits.

Mak and Coniam's (2008) study also found the same type of revisions were done as those in the studies by Kessler (2009); Aydin and Yildiz (2014); Woo et al. 2011, and Woo et al. (2013). However, they also found something else that is noteworthy. Their participants were a group of middle school aged students learning English in Hong Kong. Students collaborated on a wiki to create a brochure about their school. Throughout different phases of the project, the researchers examined the students' writing for the amount of words and t-units (clauses). What they found was that as the project progressed, the t-units became longer, or in other words, students were writing more complex sentences. Like in the previously mentioned studies, students were attending to content and adding ideas onto each other's work. The researchers also

hypothesized that students gained confidence in their writing as the project progressed, therefore causing it to be a factor in why there was an increase in writing.

On a slightly different note, Schuetze (2011) completed a study with students learning German at the university level to determine if collaborative wiki writing affected grammar. For this study, students were placed into three different groups. The students in Group 1 worked with a partner and did not use a wiki for collaboration. Students in Group 2 worked with a partner and collaborated on a wiki, and students in Group 3 worked individually. All students were given two writing assignments, in which they worked collaboratively except for those students in Group 3 who worked individually (this was also considered the control group). After each writing assignment, the students then took a test, which focused on the same material as the assignments.

Two noteworthy results were discovered. First is that students seemed to benefit from the collaboration on the wiki. The researcher said there was some indication in the results that showed students who had used the wiki for collaboration had an advantage in applying complex structures to their writing. However, when the students in the collaborative wiki group had to complete the test alone, they were not as successful. This was the same with Group 2. These groups were more successful on the writing assignments than Group 3, who worked alone, but Group 3 was more successful on the tests that were given after each writing assignment than those in the other two groups. The researcher hypothesized that students in Group 3 paid more attention to and learned from their mistakes than those who worked collaboratively.

The second interesting result that was found was the writing of those students who worked on the wiki was not significantly different than those students who did not use the wiki or who worked individually. In other words, wiki collaboration did not help the students improve

their grammar. This makes sense when considering the research of Aydin and Yildiz 2014; Kessler 2009; Mak and Coniam 2008; Woo et al. 2011; and Woo et.al 2013 who found students focused less on the form of their writing and more on the meaning of their writing.

Dobao (2012) and Wigglesworth and Storch (2009) did not examine how digital tools affected collaborative writing but instead examined collaborative writing (using pen and paper) differences among groups, pairs and/or individually. Wigglesworth and Storch (2009) had participants who were in Australia and had learned English as a foreign language in their home countries. In this study, students were asked to write an argumentative essay in either pairs or individually. Essays were then analyzed for fluency, complexity, and accuracy.

Dobao's (2012) participants were Spanish language learners at a university in the United States. Learners in this study received a grammar review lesson on the past tense, then were given a writing task to write a story, using given pictures, in the past tense. Students then worked individually, in pairs or in small groups to complete the task.

In both studies, students collaborated on writing tasks. Both studies found that working collaboratively produced more accurate texts than those who worked individually. Dobao (2012) also found when students worked collaboratively they paid more attention to language and were more successful at solving language related problems. Even though the results of Dobao (2012) and Wigglesworth and Storch (2009) did not implement digital tools in writing, their findings were similar to that of Schuetze (2011). These findings suggest that collaborative writing does have a place in the classroom as it helps students produce more complex and accurate writing. Digital tools, such as wiki or Facebook, can provide the platform for collaborative writing.

Students' Perceptions of Wikis for Writing

Several common perceptions emerged from the research that included focus groups, questionnaires and interviews as part of their qualitative data. Overall, the majority of participants expressed a positive learning experience when using wikis for collaborative writing tasks (Aydin & Yildiz, 2014; Chao & Lo, 2011, Lin & Yang, 2011; Li & Zhu, 2013).

Participants commented on how they felt the wiki platform was a useful tool for group work because it extended collaboration beyond the classroom, provided the learner with more opportunities to not only write but also to practice writing (Aydin & Yildiz, 2014; Li & Zhu, 2013), and made it convenient for students to work from home on their own time (Schuetze, 2011). Kost (2011) found students felt the wiki helped ease the stress of classwork and scheduling because the students could work independently, at times, and did not need to set up meeting times because discussions could be had through the wiki.

Students enjoyed learning from and working collaboratively with their peers and noted many benefits from doing so. Students felt they were able to learn from their peers. Some stated they felt they had learned more vocabulary and sentence structures from reading others' writings (Lin & Yang, 2011), as well as more language by reading their peers' writing and discussing language points (Li & Zhu, 2013). They also felt they had learned not only from their own grammatical errors but also from the errors their peers had made as well (Lin & Yang, 2011). Other students also mentioned they used their peers' writings for inspiration and learned different writing strategies from them (Li & Zhu, 2013).

Not only did students find the wiki platform to be useful for collaborative writing and felt they had learned from their peers, the students also mentioned how they felt the wiki increased their motivation and confidence in writing in English. One student in the study by Schuetze

(2011) commented that it was a confidence boost to see that peers were struggling with the same aspects of the language. Others also felt they wrote better because they knew someone else other than the instructor was going to read their writing (Lin & Yang, 2011). In Wheeler, Yeomans and Wheeler (2008), students were aware of the “unknown” audience and wanted to make sure their writing was more accurate. Students in Li and Zhu (2013) felt that using wikis for collaborative writing tasks enriched their writing experience and increased their intrinsic motivation. These feelings transfer across languages, as students who were learning Spanish with the wiki writing also felt a motivation to strive for higher quality of work (Lee, 2010).

Chao and Lo (2011) implemented a study with English composition classes in Taiwan to determine students’ perceptions of wiki-based collaborative writing. Many of their findings reiterate the common perceptions previously stated above. What was new, however, is the students mentioned how writing on the wiki made them more aware of their language use and content because they repeatedly reviewed and revised their work. They also felt the wiki was a helpful tool to help them plan and organize their writing.

However, with the good comes some bad. There was also discussion on the challenges the participants encountered when collaborating on the wiki. Some students experienced difficulties using the wiki and its features (Lin & Yang 2011; Wheeler, Yeomans & Wheeler 2008) and the amount of time it took to learn how to use the wiki (Kost, 2011). Some felt the unfamiliarity of the wiki impeded learning.

Peer feedback was another common challenge. Some students felt the need for training in how to give peer feedback (Ling & Yang, 2011), as they did not feel they received the type of quality feedback from their peers that they would have from their instructor. This also leads into some of the reluctance students had to provide constructive feedback to their peers. The students

in Lee's (2010) study showed almost of half of the participants were reluctant edit their peers' work because of their lack of confidence in their own writing abilities. Students felt more comfortable in adding to text rather than to edit existing text due to fear of overriding their peer's ideas (Lee 2010; Wheeler, Yeomans & Wheeler, 2008). Students wanted to protect their peers' ideas and felt by changing them, they were altering ownership. There was also some concern about being afraid to help peers edit their work because students were afraid they would tell them something incorrect or hurt their feelings (Aydin & Yildiz, 2014; Lin & Yang, 2011). Some training with how to give constructive feedback could help eliminate some of those challenges the students experienced with peer feedback.

The last common challenge was working with a group. Depending on personalities, some people worked better with others and this can affect group dynamics and the task at hand. Some students felt the group contributions were unequal and that the workload was not evenly divided (Kost, 2011; Li & Zhu, 2013). Students had to learn how to address changes in writing styles among the different group members (Kost, 2011) and learn how to adjust to communicating to develop a consensus.

Conclusions and Recommendations

The purpose of this literature review was to examine research evidence regarding two common digital tools, Facebook and Wiki, and how implementing these tools could affect students' second language writing skills. This literature review also examined students' perceptions and attitudes towards using these two tools to enhance their writing skills.

Facebook Can be a Tool to Support Writing Skills

Several studies (Miftah, 2016; Shih, 2011; Shukor & Noordin, 2014; Suthiwartnarueput & Wasanasomsithi, 2012; White, 2009; Wichadee, 2013) demonstrate how using Facebook as a

platform for writing collaboration and discussion can have a positive impact on writing skills. The study by Suthiwartnarueput and Wasanasomsithi (2012) did not specifically include peer feedback as part of the treatment, but it does include a component of grammar and writing discussions. The other studies (Miftah, 2016; Shih, 2011 White, 2009; Wichadee, 2013) include the use of peer feedback within their treatments. The results of all of these previously mentioned studies are positive in that they demonstrate when students were able to apply peer feedback and writing conversations, using Facebook as the platform to do so, second language writing skills improved.

As shown by Wang and Camilla (2014), writing more is not the answer to improve writing skills. More writing does not equal better writing. Students need to the opportunities to engage in writing discussions with their peers, their instructors, and even native speakers of the language they are learning. When students are given these opportunities, both inside and outside of the classroom, writing skills can improve.

The results of these studies do leave lingering questions, however. The studies have shown the combination of using Facebook as a platform for collaboration and discussion and peer feedback are positive combinations for improving writing skills. But is one variable more important than the other? Is it peer feedback that is the most prominent factor or is it discussing on Facebook? What if another digital tool, such as Google Docs, were used in place of Facebook? Would the results be similar? Does Facebook promote student engagement which in turn aids in writing skills? Or are there features of Facebook that specifically help writing? Shukor and Noordin (2014) attempted to answer some of these questions and did find the students who used Facebook had more positive results. However, there is a need for further studies that will examine the different variables in order to come to a definite conclusion to what

are the true driving factors when incorporating Facebook and peer feedback to improve writing skills. More research could be done in this area, with control and experimental groups, to help determine which factor is the main contributor to students' writing success. Further research could also include using other digital tools combined with peer feedback to see how this combination of digital tools and peer feedback aid in improving writing skills.

Students have a Positive Perception of Using Facebook for Academics

The studies by Ahmad and Abidin, 2010; Akbari, Naderi, Simons, and Pilot, 2016 ; Eren, 2012; Kabilan; Rios and Campo, 2015; Shih, 2011; Wichadee, 2013; Yunus, Salehi, Sun, Yen, and Li, 2011 all demonstrate that, overall, students have a positive perception of using Facebook as an academic tool. Students like the convenient nature of Facebook (Shih, 2011) in that they can work both in and outside of the classroom and on their own time. They like how they are able to interact with their peers in meaningful ways (Wichadee, 2013) where they can practice and improve their language and writing skills (Kabilan, Ahmad, & Abidin, 2010) as well as learn from their peers (Rios & Campo, 2015; Yunus, Salehi, Sun, Yen, & Li, 2011). Facebook also proved to be a tool that helped engage and motivate students (Kabilan, Ahmad, & Abidin, 2010; Akbari, Naderi, Simons, & Pilot, 2016). These studies have demonstrated that Facebook is a tool that can promote student motivation and engagement that will lead to students being more involved with their learning, thus improving their skills. However, as noted in Eren (2012), Facebook is one tool. It should not replace traditional instruction but instead can be used in conjunction with it.

Wikis Can be Tools to Support Writing Skills

Wikis can be useful collaboration tools to help improve writing skills. However, although wikis are collaborative tools, it cannot be assumed students will use them properly. Li and Kim

(2016) and Li and Zhu (2013) found that group dynamics and student interactions do need to be monitored by the instructor and adjusted as needed in order to make the most out of the wiki. How students work together is just as important as the writing discussions they have with each other.

Aydin and Yildiz, 2014; Kessler, 2009; Mak and Coniam, 2008; Woo et al., 2011; and Woo et al., 2013 all found that when students edited and revised on the wiki, they paid more attention to the content of the writing than the form of their writing; meaning they wanted to make sure their message was understood and were less concerned about their writing being grammatically correct. These results echo those found in the study by Wichadee (2013) who also found when students peer edit on Facebook, they are more focused on content rather than form. Since the results are similar across different social networks, it could be assumed that students who are learning English simply place a higher importance on content and form is less important.

These results can be examined and expanded two different ways. First, does this hold true when students edit and revise on their own? Are students still more concerned with content when they are editing their work individually or is it because they know someone else is reading their work when peer editing and want to make sure it is understood? A future study could expand on this idea with different types of groups (perhaps students editing individually and students peer editing) and look for the types of corrections between the different groups to see if they are similar or different.

The results of these studies also show that instructors need to make sure they are also placing an emphasis on helping students correct their form when writing. Students in the wiki studies mentioned the fear of being wrong when suggesting edits and revisions. Helping students

gain confidence in their writing abilities, training them how to give feedback, and letting them know that is okay to be incorrect could help students gain the confidence they need in this area.

Students have a Positive Perception of Wikis for Academics

Like Facebook, the majority of students had positive perceptions of using wikis for collaboration. They liked the convenience of being able to collaborate and practice writing skills with their peers beyond the classroom setting (Aydin & Yildiz, 2014; Kost, 2011; Li & Zhu, 2013; Schuetze 2011). Many students also felt they were able to learn from their peers because of collaborating with them on the wiki. They felt this collaboration helped them to not only improve their writing and grammar skills but also helped their vocabulary and made them aware of their own language use and content as well (Chao & Lo, 2011; Lin & Yang, 2011; Li & Zhu, 2013).

Students also felt using the wiki for collaboration helped increase their motivation, engagement and confidence in their second language writing. Students' confidence levels increased by seeing that their peers had struggles with writing as well (Schuetze, 2011). Knowing there was an audience beyond the instructor also helped increase students' motivation to learn and write better (Lin & Yang, 2011; Wheeler, Yeomans & Wheeler, 2008).

Recommendations for Research

One recommendation for future research is to implement studies at the secondary, or high school, level. Most of the literature in this review occurred at the post-secondary, or college, level and research at a different educational level could possibly provide more insight to the effectiveness of digital tools with second language writing.

Much of reviewed literature occurred with students learning English as a foreign language or with students learning a foreign language other than English. Therefore, another

possible idea for future research is to implement studies within the United States with students who are specifically English language learners. It would be interesting to see how the data of students learning English in the United States compares to those learning English as a Foreign language.

Lastly, qualitative data would provide a stronger argument for the use of digital tools to improve second language writing skills. A future research study could be done to include more qualitative data, such as incorporating writing pre-and post-tests prior to implementing the use of a specific digital tool.

Recommendations for Classroom Application

Digital tools do have a place in the ESL/EFL writing classroom. They are an engaging medium that motivates students to collaborate with and learn from their peers as well as to practice their writing skills in a non-threatening environment. However, simply because the tool is a collaborative tool, as stated by Li and Zhu (2013), does not mean that it will be used in that way. Teachers need to consider group dynamics when grouping students for collaborative work and check in to make sure all group members are collaborating equally. Teachers also need to guide students to look at the writing as a whole, which includes editing and revising both content and form. Lastly, teachers need to ensure students know how to provide quality peer feedback and how to participate in quality writing discussions. With these recommendations, students will continue to have positive writing experiences as well as increase their writing skills.

Study Limitations

Much of the literature that was reviewed consisted of small population sizes and occurred at the university level. Also, this review contained research on languages other than English, even

though the focus was English as a second or foreign language because of the type of research that was available. Sample size, the level/age of participants and the target language being studies should be taken into consideration when generalizing results.

Conclusion

The reviewed research demonstrates Facebook and Wikis are platforms that can have positive impacts on second language writing skills. Both digital tools can provide a place for students to effectively collaborate with their peers as well as their instructors in order to improve their writing skills. Students also have positive perceptions of using both of these tools for academic purposes. While there are some limitations to this review, it can be suggested that both Facebook and Wiki are effective platforms for improving second language writing skills.

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